DOCUMENT RESUME

ED 183 010 FL 010 967

AUTHOR Staiano, Anthony Vincent
TITLE The Development of Conversational Coherency in Young Children. Kansas Working Papers in Linguistics, Volume 4, Number 1.
INSTITUTION Kansas Univ., Lawrence. Dept. of Linguistics.
PUB DATE 79
NOTE 17p.

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Child Language: Cognitive Development: Discourse Analysis: Early Childhood: Interaction: *Language Development: Language Processing: *Language Research: *Nonverbal Communication: Preschool Children: Psycholinguistics: *Speech Communication: *Verbal Development
IDENTIFIERS *Conversation

ABSTRACT

A paper by Keenan and Klein (1975) provided evidence for the hypothesis that conversationality is present in children as young as 2 and 1/2 years of age. Results of the study indicated that before the emergence of more adult-like coherency operations, the children passed through a period in which such operations were foreshadowed by vocal play. While supporting the possibility that conversationality emerges sooner than heretofore expected, the study reported here takes issue with the implications in the Keenan and Klein report that sound play was the precursor of conversational coherency. It maintains, rather, that non-linguistic coherency and an interaction between linguistic and non-linguistic events in the establishment of coherent exchanges between children pre-dated the establishment of adult-like coversationality. A study is reported which lends initial support to this hypothesis. (Author/AMH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Linguistics Grad. Stud. Assoc. - Kansas
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

ED183010

FL010967

THE DEVELOPMENT OF CONVERSATIONAL COHERENCY IN YOUNG CHILDREN

Anthony Vincent Staiano

Abstract: A recent paper by Keenan and Klein (1975) provided evidence for the rather revolutionary hypothesis that conversationality is present in children as young as 2½ years of age. The authors' results indicated that before the emergence of more adult-like coherency operations, their children passed through a period in which such operations were foreshadowed by vocal play. While supporting the possibility that conversationality emerges sooner than heretofore expected, I have taken issue with the authors' implication that sound play was the precursor of conversational coherency, maintaining, rather, that non-linguistic coherency and an interaction between linguistic and non-linguistic events in the establishment of coherent exchanges between children pre-dated the establishment of adult-like conversationality. A study is reported which lends initial support to this hypothesis.

Introduction

Adult conversation is characterized by topical or thematic unity which is sustained over time and between interlocutors by means of a number of conversational devices and conventions. Theme shifts, the introduction of new information, changes in speaker, as well as changes in the quality and quantity of what is transmitted, are regulated by a set of pragmatic rules. That conversation is principled and coherent, i.e. that it is rule-governed, if cohere is taken to mean "to be well-connected and to follow in the order of discourse"[1], was recognized by Grice:

> Our talk exchanges do not normally consist of a succession of disconnected remarks and would not be rational if they did. They are characteristically, to some degree at least, cooperative efforts; and each participant recognizes in them, to some extent, a common purpose, or at least a mutually accepted direction. (Grice 1968, p. 6.)

Grice recognized also that conversations do not proceed in blind adherence to such a criterion:

> The purpose or direction may be fixed from the start,...or it may evolve during the exchange; it may be fairly definite, or it may be so indefinite as to leave very considerable latitude to the participants. But at each stage, some possible conversational moves would be excluded as conversationally unsuitable. (Ibid., pp. 6-7.)

Kansas Working Papers in Linguistics, Vol. 4, No. 1, pp. 127 - 142.

From these premises, Grice formulated a set of conversational postulates, all of which follow from the over-riding "law" of conversation: the Cooperative Principle:

> Make your contribution such as is required, at the stage at which it occurs, by the accepted purpose or direction of the talking in which you are engaged. (Ibid., p. 7.)

For conversationalists to behave in accordance with the Cooperative Principle, at any given point, each must relate his linguistic behavior to what he and his interlocutor have already produced in order to produce a talk exchange which forms a coherent whole. This necessity, which follows from the Cooperative Principle, I have called the coherency requirement.

In summary, adult linguistic competency includes the ability to engage in coherent talk exchanges. The task, then, which confronts a child learning this linguistic system is truly a formidable one, for he must not only build a lexicon and later figure out how to construct sentences, he must also learn how to use sentences in ways that are consonant with the conversational/discourse rules of the language. That is, he must master, as well as the phonological, lexical, syntactic, and semantic systems, the pragmatics of face-to-face communication.

A recent study by Elinor Ochs Keenan and Ewan Klein (1975) investigated some aspects of the way children acquire conversational rules. An interesting facet of the problem they overlooked, however, was the question of whether non-verbal behavior could produce coherent child-to-child exchanges by interacting with linguistic and/or non-linguistic behavior. For the study which follows, it was my contention that young children who are in the process of developing the conversational system pass through a period in which interactional coherency is established non-linguistically; that is, that non-linguistic coherency is a necessary precursor for more advanced forms of conversation. The study which follows attempted to determine whether, and in what proportion, non-linguistic behavior interacted with other behavior, linguistic or non-linguistic, to establish coherent exchanges between children. The report of my study begins after a brief review of the Keenan and Klein study.

The Keenan and Klein Study

Keenan and Klein (1975) maintained that a crucial prerequisite for face-to-face linguistic interaction is the necessity for each participant to attend to the other and provide cues which signal such attention. In the adult system, selective attention is typically presumed, and often signalled by non-linguistic or quasi-linguistic signs (headnods, vocalizations). The authors hypothesized that young children (in their experiment, twin boys observed continuously for four months between the ages of 2 years 6 months and 2 years 10 months) needed far more frequent and more transparent signals of the selective attention of their interlocutors. These attention giving and seeking behaviors were seen as forms of primitive coherency establishment devices.

Definition of Linguisitic Coherency: Keenan and Klein defined linguistic coherency as a child's linguistic manipulation of an utterance spoken to

him by another child.[2] They found that there appear to be categories of such manipulations:

1. substitution: the structural description of the matrix sentence spoken by child A may be preserved in its entirety with child B substituting one constituent;
2. focus and expansion: child B may "pull out" one constituent and elaborate on it.
3. focus and addition of new structure: child B may "pull out" one constituent and then add new structure.
4. referentiality: one child may establish a thematic relationship to the other child's utterance; that is, child B would not merely preserve an element or elements of the linguistic form of child A's utterance, he would rather introduce new referents which are semantically related to the referents introduced by the other child.

Keenan and Klein considered coherency which involved referentiality to be the most advanced form of child-child talk exchanges since a characteristic of adult conversation is the establishment of topical or thematic unity, which is further characterized by the mutual providing of new information.

Of great interest in the Keenan and Klein study was their finding that before linguistic coherency operations assumed a large portion of transactions, their children engaged in sound play, which was described as talk exchanges having continuity over time wherein two children interact vocally with utterances having no apparent meaning. Coherency would result when one of the children repeats the other child's vocalization, or substitutes one sound, or one or more syllables, into the other child's vocalization.

Conclusions of the Keenan and Klein Study: Two striking results emerged from the Keenan and Klein study:

1. Conversational coherency occurs at a far younger age than commonly thought, emerging first as sound play.
2. Sound play, as a device to establish and maintain coherency, largely drops out at 2 years 10 months, to be replaced by linguistic coherency operations that are meaning bearing devices.

Moreover, the kinds of coherency devices used by children as they master linguistic coherency operations seem to be foreshadowed during the sound play period. Substitution and the various focusing operations occur with non-meaningful vocalizations. The authors conclude that sound play is the precursor of more advanced coherency operations.

Extensions of the Keenan and Klein Analysis: In a pilot project in which I attempted to account for certain weaknesses[3] in the Keenan and Klein approach and to partially replicate it, I found that their definition of linguistic coherency had to be expanded to account for a number of other coherency operations which were observed in the talk-exchanges of the children I studied. Several of these operations could be termed "quasi-linguistic" since they are either non-meaningful or minimally meaningful.

1. stereotypic response: child B responds to child A by use of a politeness convention ("Thank you", "You're welcome", "OK".) which may or may not be appropriate to the preceding utterance,
2. vocalization contingent upon and related to a meaning bearing

utterance: child B vocalizes, e.g., laughs, shrieks, prolongs a vowel, repeats a syllable ("dadadada") in response to an utterance made by child A; and its converse, and

3. meaning bearing utterance contingent upon and related to a meaning bearing utterance.

I also found that a third focus operation had to be added to Keenan and Klein's inventory. Recall that focusization involves one speaker's giving selective prominence to a constituent within the other speaker's utterance while "ignoring" the rest of that utterance. This is often accomplished by moving that constituent to the front of the next discourse sentence. I found that simple focus was operating in addition to Keenan and Klein's focus and expansion and focus and addition of new structure:

4. simple focus: child B "pulls out" one constituent of child A's utterance, this constituent then comprises all of child B's utterance.

It should be noted that the categories identified by these studies define the development of conversational coherency in terms of linguistic coherency.

Keenan and Klein made no mention of the role of behavioral coherency as a possible precursor to conversational coherency. They implied that more advanced modes of conversational reciprocity are based in dyadic sound play. Children below the age of 3 years are engaged in vigorous exploration and manipulation of their environment. In short, non-linguistic behaving forms a large percentage of their total behavioral repertoire. Attention, therefore, should be given to how children interact coherently in non-linguistic exchanges. Efforts must be made to determine if such behavioral coherency predates verbal coherency and, furthermore, whether non-linguistic coherency is a necessary precursor of conversational coherency, and in what ways non-linguistic and linguistic coherency interact. These questions are addressed in the study which follows.

A Study to Investigate the Role of Behavioral Coherency in Young Children's Conversations

It was hypothesized that conversations between children below the age of three years would be characterized by

1. a low proportion of linguistically coherent talk exchanges,
2. a much higher proportion of exchanges in which the verbal or non-verbal activity of one child would relate to the activity of the other child by non-linguistic means,
3. an interaction between non-verbal and linguistic behavior in the establishment of coherent exchanges.

To test these hypothese, an extended interaction between two children was analyzed. Before considering the nature of the experiment, the following definitions are offered.

Definitions: An event exchange was defined as the co-occurrence of two acts, linguistic, non-linguistic, or both, one performed by one child and the second performed by the other child. Exchanges were then judged coherent if the second act followed the first in a meaningful fashion. Meaningful was defined as any behavior which related to the first behavior

of the other child. The following are examples of coherent and non-coherent exchanges taken from the transcript:

(1) Kathy: [pushes Jay.]
Push me! Push me! Push me! Push me!
Jay pushing me.
Jay: [pushes Kathy, goes into bathroom, closes door.][4]

This exchange was judged coherent because Jay's action of pushing Kathy relates to her request to be pushed. In this case, coherency was established by Jay non-verbally by his act of pushing Kathy. Similarly, exchange (2) was also coherent. Unlike (1), however, coherency was established linguistically when Jay repeated Kathy's command:

(2) [Jay is in the bathroom; Kathy is
[at the door outside.]
Kathy: Open that!
Jay: Open that.
[opens door, laughs.][5]

Although Jay also non-verbally acted in a manner that was related to Kathy's linguistic expression by his opening the door following his repetition of her command, it is the behavior <u>immediately</u> following hers, the first behavior in the sequence, that is judged. This procedure was used throughout the analysis.

In (3) a longer sequence is provided which shows non-coherent and coherent exchanges:

(3) (a) Kathy: [gets on tricycle, points to the seat.]
Sit right there, Jay.
Sit right there, Jay.
Sit right there, Jay.
Sit right there, Jay.
(b) Jay: [looking at a set of shelves nearby.]
The horsie! Jump. Jump.
(c) Kathy: The horsie.
(d) Jay: [opens door.]
(e) Kathy: [goes into the bathroom, then goes out.][6]

Four child-child exchanges took place in (3), two were judged non-coherent, (b) and (d), and two were judged coherent, (c) and (e). In (b) Jay notices an object, a statuette of a horse on a shelf, names the object, and predicates an action of that object. Such behavior does not relate to Kathy's repeated requests for Jay to sit next to her on her tricycle. Once Jay names the object, however, Kathy repeats. Her repetition in (c) is linguistically coherent, for it verbally relates to Jay's immediately preceding verbal behavior. Jay's opening of the bathroom door following Kathy's repetition (d) was judged non-coherent, as was (b), since such behavior did not relate to what Kathy said in (c). Kathy at (e), however, behaves in a coherent manner to Jay, for going through a doorway opened by him connects meaningfully with the opening of the door.

In this manner, each exchange between the children was evaluated and categorized.

Procedure: The two children chosen for the study, Jay, a boy 2 years 3 months of age, and Kathy, a girl, 2 years 0 months of age, had participated in my pilot project. Hence, when the data for this study were collected, I had already become known to the children, having observed and played with them on two prior occasions for a total of approximately five hours. Jay and Kathy were selected because of their age and because they had had ongoing contact with each other in a local preschool for approximately six months prior to the study. In addition, they had had fairly regular contacts away from the school since their mothers were co-workers and friends.

The session for this study occurred in Kathy's home. The extended interaction which was used for the study, following a much longer period during which the children were playing, consisted of a number of events which centered around the downstairs bathroom, located just to the left of the living room. The interaction began with Jay running into the bathroom and closing the door behind him. The entire interaction, which soon after its start involved other locations and objects, was approximately 15 minutes long and involved a total of 93 behavioral sequences. All events were recorded by hand as I observed the interaction from a distance of about eight feet.

Exchanges were evaluated according to the criteria I have described above. The initial judgement separated coherent and non-coherent exchanges. Following this initial categorization, coherent exchanges were subcategorized into three classes:

1. vocal/verbal--vocal/verbal: within-class coherency, characterized by a verbal and/or vocal event coherently responded to by a vocal and/or verbal event;
2. behavioral--behavioral: also within-class coherency, characterized by a non-linguistic event which is coherently responded to by another non-linguistic event; and
3. vocal/verbal--behavioral: between-class coherency, characterized by a vocal or verbal event which is coherently responded to by a non-linguistic event and/or a non-linguistic event which is coherently responded to by a vocal or verbal event.

These categories were investigated to determine (a) if there would be individual child differences as a function of the type of exchange coherency, (b) if exchange coherency would be distributed randomly across exchange types, or if type loadings would occur which would allow rank ordering, and (c) the relative distribution of between and within-class exchange coherency. The third analysis was the most crucial with regard to the questions posed at the beginning of the paper. If non-linguistic events would be responded to by within-class events in a coherent manner, non-linguistic coherency could be established. If, in addition, such non-linguistic behavior would interact with vocal/verbal behavior in the establishment of coherent exchanges, the hypothesis that non-language behavior plays a central role in the acquisition of conversational coherency would receive initial support. The results which follow indicate that such an hypothesis is at least initially supportable.

Results: Before presenting the date in summary form, I have provided examples of each of the coherent exchange types. Types are presented in descending order of frequency. Line numbers to the right refer to the location of the sequences in the transcript.

(1) Behavior-Behavior:

(a)
Jay : [shuts door, opens door.]
Kathy: [shuts door.]
Jay : [opens door.]
Lines 1-3

(b)
Jay : [opens door.]
Kathy: [goes into bathroom, closes door.]
Jay : [pounds on door.]
Kathy: [opens door, comes out, pushes Jay.]
Jay : [opens door, goes into room.]
Kathy: [closes door.]
No me!
[pounds on door.]
Jay: [pounds on door from inside room.]
Lines 10-18

Sequence (1a) involved two coherent exchange pairs, one for each child: Kathy shuts the door after Jay opens it, followed by Jay's opening the door. Sequence (1b) was comprised of six coherent exchange pairs, three for each child.

(2) Behavior-Verbal:

(a)
Jay : [sits on her tricycle.]
Kathy: My bike.
[gets on tricycle on top of Jay.]
Lines 28-30

(b)
Kathy has just driven her tricycle into the bathroom, immediately after which Jay closes the door. When he does so, Kathy screams, then says, "Let me out! Let me out! Let me in!" The following sequence begins after her command:

(a) Jay : [pounds on door.]
(b) Kathy: Let me out Jay! Let me out, Jay!
(c) Jay : [pounds on door.]
(d) Kathy: Let me out!
(e) Jay : [opens the door, closes the door.]
[opens the door, closes it, laughs.]
(f) Kathy: Me out! Let me out! Let me in!
Lines 58-63

Sequence (2b) is composed of a number of exchanges which become coherent by Kathy's verbal behavior as she repeatedly commands to be let out of the

bathroom (b), (d), (f). Jay, however, says nothing, and on one occasion, (c), responds non-coherently.

(3) Verbal--Behavior:

(a) Jay : [closes door, opens door.]
(b) Kathy: [closes door, opens door, goes into bathroom, closes door.]
(c) Jay : Let me in!
(d) Kathy: [opens door, goes out.]
(e) Jay : [goes in.]
(f) Kathy: Let me in!
(g) Jay : [goes out.]
(h) Kathy: Jay, come in. Come in. Come in.
(i) Jay : [goes in.]

Lines 70-79

The first coherent exchange of this sequence, exemplifying type Verbal--Behavior occurs at (d) when she accedes to Jay's request to be let into the bathroom. (g) is almost identical to (d) with the roles of requestor and addressee reversed. Jay, at (i), non-linguistically carries out Kathy's command to enter the bathroom.

(4) Verbal--Verbal:

(a) In the line immediately after the last line of sequence (3) above, Kathy abruptly reverses herself. She has asked Jay to come into the bathroom, he enters, but Kathy then pushes him out.

(a) Kathy: [pushes Jay out.] No go.
(b) Jay : Me right back.
(c) Kathy: Me right back. [pushes Jay to the stairway.]

Lines 80-84

(b) and (c) are coherent exchanges which become coherent by each child's commenting on an utterance of the other child.

(b) [Kathy has just brought some books to Jay and sits down on a stool next to him.]

(a) Kathy: Books. Books. Books. Books. Books. Here, Jay. [gives Jay a book.]
(b) Jay : You read this.
(c) Kathy, Jay: [both are sitting with books in their laps.]
(d) Jay : [gives the book back to Kathy.]
(e) Kathy: Let me have it.
(f) Jay : Let me have it.

Lines 119-127

Jay, at (b), established coherency with Kathy by verbally responding to her act of giving him a book, and, thus, is of the Behavior--Verbal type.

It is at (f) that a coherent exchange of the Verbal--Verbal type occurs.

The preceding four types of coherent exchange were the most frequently occurring types, accounting for 91% of all coherent exchanges. One example of each of the remaining five types is given, except Verbal--Vocal, which did not occur in the corpus. In each case, it is the last event in the sequence which established coherency.

(5) Behavior-Vocal:

Jay : [opens door.]
Kathy: [goes into bathroom, goes out.]
Jay : [screams.]
Lines 42-44

(6) Vocal--Vocal:

Jay: Open that. [he opens the door, laughs.]
Kathy: [laughs.]
Lines 20-22

(7) Vocal--Behavior:

Jay : [pushes Kathy, goes into bathroom, closes door.]
Kathy: [screams.]
Jay : [opens door.]
Lines 7-10

(8) Vocal--Verbal:

Jay : [opens the door, closes the door, opens the door, closes the door, laughs.]
Kathy: Me out! Let me out! Let me in!
Lines 62-63

The tables and figure which follow present the summary data. Table 1 presents the first order coherency analysis: individual child differences as a function of the type of exchange coherency.

VERB- (VOC)			VOC- (VERB)		
J	0	0	J	0	1
K	0		K	1	
VERB- (VERB)			VOC- (VOC)		
J	4	6	J	0	1
K	2		K	1	
VOC- (BEH)			BEH- (VOC)		
J	1	1	J	1	3
K	0		K	2	

(cont.)

						(cont.)
BEH-(BEH)			BEH-(VERB)		
J	16		J	2	
K	12	28	K	12	14
VERB-(BEH)					
J	6				
K	4	10			
					N=64

Table 1: Frequency of coherent exchanges by child and type of exchange coherency. Circled terms refer to the event that established coherency. N=total number of coherent exchanges, J=Jay, K=Kathy. Voc.= vocalization, Verb.=verbalization, Beh.=non-linguistic behavior. The number to the right under each type is the combined total for that type.

Table 2 provides individual child rank orderings of coherency establishment operations. Table 3 presents the combined data, derived by summing across the two children.

	JAY			KATHY		
Exchange Type	No.	Rank	% of Child's Coherent Exchanges	No.	Rank	% of Child's Coherent Exchanges
Beh-(Beh)	16	1	53%	12	1	35%
Verb-(Beh)	6	2	20%	4	2	14%
Verb-(Verb)	4	3	13%	2	3	6%
Beh-(Verb)	2	4	7%	12	1	35%
Voc-(Beh)	1	5	3%	0	5	0
Beh-(Voc)	1	5	3%	2	3	6%
Verb-(Voc)	0	6	0	0	5	0
Voc-(Voc)	0	6	0	1	4	3%
Voc-(Verb)	0	6	0	1	4	3%

Table 2: A comparison of the rank orders of coherency establishment operations. Circled term refers to the event category that established coherency.

Exchange Type	Number of Coherent Exchanges	% of All Coherent Exchanges	Rank
Beh-(Beh)	28	44%	1
Beh-(Verb)	14	22%	2
Verb-(Beh)	10	16%	3
Verb-(Verb)	6	9%	4
Beh-(Voc)	3	5%	5
Voc-(Beh)	1	2%	6
Voc-(Voc)	1	2%	6
Voc-(Verb)	1	2%	6
Verb-(Voc)	0	0	7

cont.

cont.

Table 3: Rank order of coherent exhange types summed across the two children. Circled terms refer to the event category that established coherency.

The second order coherency analysis grouped the above exchange types into four higher level types:

1. non-linguistic events which cohere by means of non-linguistic events (types Behavior-(Behavior), Behavior-(Vocal)),
2. non-linguistic events which cohere by means of linguistic events (type Behavior-(Verbal)),
3. vocal or verbal events which cohere by means of non-linguistic events (types Verbal-(Behavior), Vocal-(Behavior)), and
4. vocal or verbal events which cohere by means of vocal or verbal events (types Verbal-(Verbal), Vocal-(Verbal), Vocal-(Vocal), Verbal-(Vocal)).

Figure 1 presents comparison data for each child and the data derived by summing across the children.

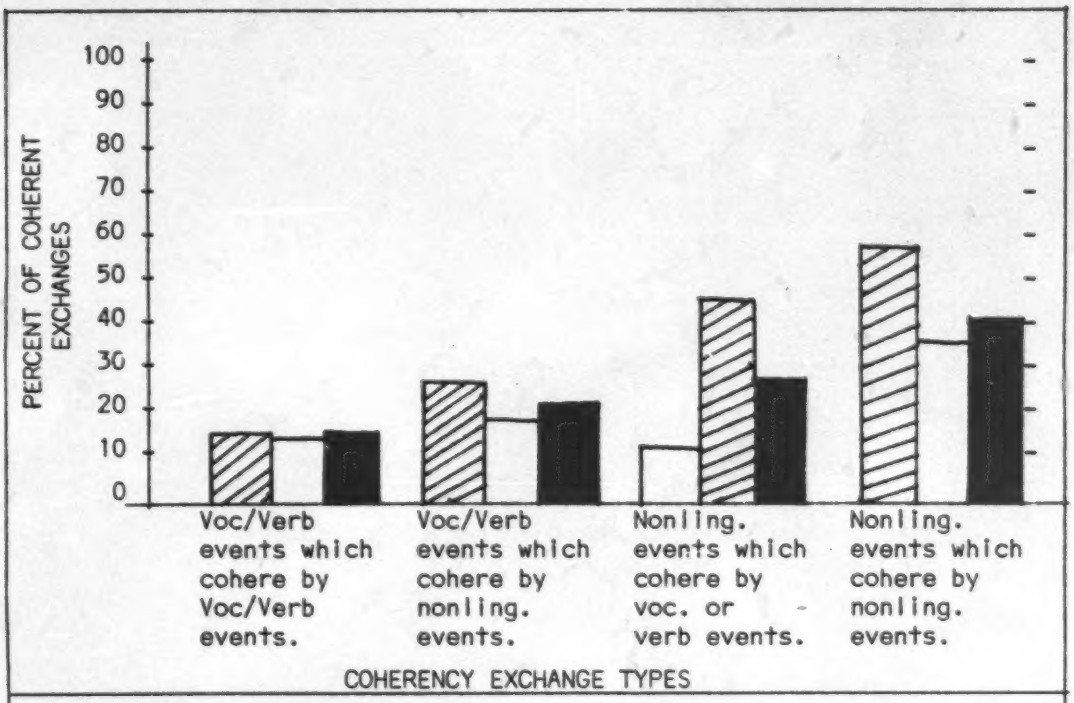

Figure 1: Coherency establishment operations: a comparison of the two children.

= Jay = Kathy = Combined

DESCRIPTION	COHERENCY TYPE	PERCENTAGES		DESCRIPTION
Nonlinguistic events which cohere by means of nonling. events	BEH (BEH) BEH (VOC)	43.8 4.5	48.3	Coherency which involves a non-linguistic behavior as at least one member of the exchange pair.
Nonlinguistic events which cohere by means of lin-guistic events	BEH (VERB)	21.9	87.4	
Vocal or verbal events which co-here by means of nonlinguistic events	VERB (BEH) VOC (BEH)	15.6 1.6	17.2	
Vocal or verbal events which cohere by means of vocal or verbal events	VERB (VERB) VOC (VERB) VOC (VOC) VERB (VOC)	9.4 1.6 1.6 0	12.6	Coherency which involves voc. and/or verb. behavior as both members of the exchange pair.

Table 4: The Distribution of Between and Within Class Exchange Coherency. "Linguistic" denotes interpretable (by the adult) strings and is synonymous with "verbal" (VERB.).

Discussion: It must be noted that the conclusions drawn from these results are based on limited data. However, the results are suggestive of the conversational behavior typical for these children, and I suspect that a larger corpus drawn from these and other children would bear out my conclusion.

The child comparison data reveal striking similarities as well as differences. The first three ranks in Table 2, excluding Kathy's Behavior-(Vocal), are identical for the two children, indicating that both tend to prefer the same type of coherency operations. Similarly, of the five coherency operations which form Jay's lowest two ranks (Vocal-(Behavior), Behavior-(Vocal), Verbal-(Vocal), Vocal-(Vocal), and Vocal-(Verbal)), all but one, Behavior-(Vocal), share these low rankings with Kathy, except for Vocal-(Vocal) and Vocal-(Verbal) which rank next to last for Kathy but last for Jay, and Vocal-(Behavior), which ranks next to last for Jay but last for Kathy.

These similarities notwithstanding, marked differences do exist. For one, there are differences in the degree to which each child verbally comments in a coherent fashion on non-linguistic behavior. Secondly, differences are also noted in the relative proporiton of each child's

non-linguistic--non-linguistic event coherency. Kathy showed herself to be far more likely to establish coherency by verbally commenting on behavior than was Jay. Jay, on the other hand, clearly preferred to establish coherent exchanges by acting non-linguistically to Kathy's non-linguistic behavior. 53% of all of Jay's coherent exchanges were of this sort as compared to only 35% of Kathy.

As is readily apparent in Figure 1 and Table 4, exchange coherency which involved at least one non-linguistic behavior was far more common than was coherency which involved vocal and/or verbal behavior as both members of the exchange. Furthermore, nearly half of all coherent exchanges involved non-linguistic behavior as both members of the exchange pair (Beh-Beh :43.85%). In Jay's case, more than half of his coherent exchanges involved this sort of operation. On the other hand, coherent exchanges involving meaningful linguistic expressions as both members of the pair formed a very small proportion (under 10%) of all coherent exchanges.

These data also provide striking evidence for verbal/vocal-behavioral interaction in the establishment of coherent exchanges. 43.6% of all coherent exchanges became coherent either by a vocal or verbal event which followed a behavioral event, or by a behavioral event immediately following a verbal or vocal event.

Finally, these results do not support Keenan and Klein's finding that sound play was used for coherency establishment purposes, at least with the children who participated in this study. It is entirely possible that both Kathy and Jay had passed through such a stage earlier, and that when I investigated them they were well on their way to more adult-like coherency operations. However, it is interesting to note that the children in my study were considerably younger than the children in the Keenan and Klein study: 2 years 0 months and 2 years 3 months of age as compared to the twins who were studied from the age of 2 years 6 months to 2 years 10 months. It is also possible that twins are more idiosyncratic in their language and conversational development than are non-twins. The use of sound play by the Keenan and Klein children might be an indication of their idiosyncraticity.

Conclusions

This paper was motivated by the hypothesis that the account of the development of conversational coherency in young children as presented by Keenan and Klein (1975) was inadequate. To the authors, sound play was seen as a precursor to the development of more adult-like coherency operations. I hypothesized that the roots of conversational coherency may lie in non-linguistic coherency; that is, in non-linguistic exchange pairs whose members related to each other. Furthermore, it was hypothesized that a possibly necessary precursor to linguistic coherency is coherency which involves non-linguistic behvalor as one member of coherent exchange pairs. Though the data base on which these results rely is limited, these hypotheses appear to be borne out; at least with the sample used in this analysis, non-linguistic events do cohere with linguistic events. In fact, one of Kathy's favored coherency operations was to verbally comment on Jay's non-linguistic behavior (35% of all of her coherent exchanges).

Linguistic coherency (Verbal-Verbal) and coherency which involved vocalizations formed a very small portion of the total number of coherent exchanges; coherency which involved non-linguistic events as one or both members of coherent exchanges pairs was found to be seven times more frequent. It is the magnitude of these results which leads me to suspect that these conclusions will be valid for a much larger limited corpus.

Young children are behaving as well as speaking and "sound-playing" creatures. Recourse only to the linguistic and sound play levels to explain the development of conversationality, as these data suggest, might misrepresent what is actually transpiring. These results point to the conclusion that non-linguistic behavior interacts with verbal/vocal behavior to produce coherent exchanges, such an interaction possibly serving as a necessary precursor to the development of conversationality in children.

Acknowledgements

I wish to thank Dr. Melissa Bowerman for providing the encouragement and motivation for this paper. Special thanks are also given to the parents of Jay and Kathy who gave of their time, their homes, and most importantly, their children. Without their assistance, this paper would not have been possible. I also would like to thank the editors of the Kansas Working Papers in Linguistics, especially Geoff Gathercole, for providing extremely valuable suggestions in the preparation of the manuscript. Most of all, I wish to thank Glory Cool Staiano for locating the children used in the study and for providing a clear and incisive mind in the final editing of the manuscript.

Footnotes

1. The Oxford English Dictionary.

2. Keenan and Klein do not use the term linguistic coherency, but rather coherency. I have appended linguistic to their term to distinguish between coherency which involves linguistic expressions and coherency which involves non-linguistic behavior. The definition attributed to them is taken from my understanding of their use of the term. If I have misrepresented them, such would be attributable to me, of course, and not to Keenan and Klein.

3. Groundbreaking though the Keenan and Klein study was, it suffers from a number of serious weaknesses, foremost of which is the fact that it is nearly impossible to replicate. The authors chose to research the senior author's twin sons and did so within the confines of their bedroom by continuous video tape recording. A second serious weakness lies in the fact that very little data is presented. We do not know, for example, how coherent the children were, for frequencies of coherent exchanges, categorized by type and expressed as a portion of total exchanges, were not given. These weaknesses were in part accounted for in a pilot project done by this author, which indicated that linguistic coherency, expressed as a portion of total opportunities to respond, ranged from 12% with one child to 42% with the other.

4. Lines 7-9 of the corpus.
5. Lines 19-21 of the corpus.
6. Lines 32-43 of the corpus.
7. The period before the session analyzed in this study had been intended to be part of the corpus as well. It was recorded using a portable video tape machine. Equipment malfunction, however, made the video portion unusable. The audio portion, therefore, was used as a partial replication of Keenan and Klein. The results have been reported elsewhere (unpublished ms.).

REFERENCES

Bateson, Mary Catherine. 1975. Mother-infant exchanges: The epigenesis of conversational interaction. In Doris Aaronson and Robert W. Rieber (eds.), Developmental Psycholinguistics and Communicative Disorders. New York: Annals of the New York Academy of Sciences (263).

Beckwith, L. 1976. Caregiven-infant interaction and early cognitive development in pre-term infants. Child Development 47.579-589.

Deuzin, Norman K. 1971. Interaction and language acquisition in early childhood. Word 27. 445-459.

Dittman, A. T. 1977. The development of conversational behavior. In Norbet Freedman and Stanley Grand (eds.), Communicative Structures and Psychic Structures: A Psychoanalytic Interpretation of Communication. New York: Plenum Press.

Ervin-Tripp, Susan and Claudia Mitchell-Kerman (eds.). 1977. Child Discourse. New York: Academic Press.

Gove, Antonia F. 1971. Symbolization and sequencing in the development of interaction skills in a one year old child, Word 27. 170-178.

Grice, P. 1968. Logic and conversation. Lectures.

Keenan, Elinor O. 1974. Conversational competency in children. Journal of Child Language 1. 163-183.

---------- and Evan Klein. 1975. Coherency in children's discourse. Journal of Psycholinguistic Research 4. 365-380.

Krans, R. M. and Sam Glucksberg. 1969. The development of communicative competency as a function of age. Child Development 40. 255-266.

Lewis, M. and Leonard A. Rosenblum (eds.). 1977. Interaction, Conversation, and the Development of Language (Origins of Behavior 5). New York: Wiley.

Moerk, Ernest L. 1977. Pragmatic and Semantic Aspect of Early Language Development. Baltimore: University Park Press.

Mueller, Edward et al. 1977. The development of peer verbal interaction among two year old boys. Child Development 48. 284-287.

----------. 1972. The maintenance of verbal exchanges between young children. Child Development 43. 930-938.

Sachs, Harvey, Emmanuel A. Schegloff and Gail Jefferson. 1974. A simplest systematics for the organization of turn-taking for conversation. Language 50:4 (part 1). 696-735.

Snow, Catherine E. 1977. The development of conversation between mothers and babies. Journal of Child Language 4. 1-22.

----------. 1973. Mothers' speech to children learning language. Child Development 43. 549-565.

Umiker-Sebeok, Donna Jean. 1976. The Conversational Skills of Pre-School Children. Dissertation: University of Indiana (Bloomington).

Wekowitz, Joan et al. 1976. Conversational congruence as a criterion of socialization in children. Child Development 47. 269-272.

Wellman, H. 1977. The naturalistic communicative abilities of two year olds. Child Development 48. 1052-1057.